



P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belagavi)

Eighth Semester, B.E. - Mechanical Engineering

Semester End Examination; May / June - 2018

Power Plant Engineering

Time: 3 hrs

Max. Marks: 100

Note: Answer FIVE full questions, selecting ONE full question from each unit.

UNIT - I

- 1 a. Sketch and explain; 12
- i) Harnessing of tidal energy ii) Harnessing of wind energy
- b. With a neat sketch, explain thermo electric power generation. 8
- 2 a. The annual peak load on a 35 MW power station is 25 MW. The power station supplied loads having maximum demands 10 MW, 8.5 MW, 5 MW and 4.5 MW .The annual loads is 45%. 10
- Find;
- i) average load ii) Energy supplied per year
- iii) Diversity factor iv) Demand factor
- b. List the parameters considered for selection of site for steam power plant. 10

UNIT - II

- 3 a. Sketch and explain hydroelectric power plant. 10
- b. With a neat sketch and explain the following pulverized fuel handling system : 10
- i) Unit system ii) Bin system
- 4 a. The mean monthly discharge for 12 months at a particular site of a reverse is tabulated below;

Months	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Discharge m ³ /s	1000	800	600	500	200	1500	2500	3000	2400	2000	1500	1500

10

Draw;

- i) Hydrograph for the given discharges and find average monthly flow
- ii) Draw flow donation curve
- b. With the help of neat sketches, explain the principle of “overfeed” and “underfeed stokers”. 10
- ### UNIT - III
- 5 a. With a neat sketch, explain the working of Benson boiler. What are the advantages and disadvantages of it? 12
- b. With a neat sketch, explain the working of hyperbolic cooling tower. 8
- 6 a. With a neat sketch, explain the operation of balanced draught system. What are its advantages? 10
- b. With a neat sketch, explain the working of hydraulic ash handling system. 10

UNIT - IV

- 7 a. Explain the necessity of cooling system in a diesel engine. What are the methods of cooling the engine? Explain. 10
- b. What are the advantages and disadvantages of gas turbine power plant? State the application of gas turbine plant. 10
- 8 a. Give the layout of a diesel engine power plant. 8
- b. Explain briefly wet pump lubrication system. With reference to a diesel engine power plant. 6
- c. With a neat sketch, explain the closed cycle gas turbine plant. 6

UNIT - V

- 9 a. With a neat sketch, explain Pressurized Water Reactor (PWR). 12
- b. Discuss briefly the methods of nuclear waste disposal. 8
- 10 a. What is a nuclear reactor? How are nuclear reactor classified? With a neat sketch, explain the working of nuclear reactor. 12
- b. Explain radiation hazards and its control. 8

* * * *